

**Science - Year 3**

Forces and Magnets – Block 3FM

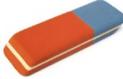
# Amazing Magnets

Session 3

**Resource Pack**

Name:

Attractive Objects – Guessing Game

Object	My Guess (✓ or x)	Attracted to magnet? (✓ or x)
		
		
		
		
		
		
		
		
		
		
		
		

I think that some objects are attracted to magnets because ...

## Magnet questions

Are big magnets more powerful than small ones?

Which magnet is the  
strongest?

How many sheets of  
paper can a fridge magnet  
hold?

Are magnets just as powerful underwater as they are through the air?

## Magnetic Materials Questions

Are all coins magnetic?

Which materials are magnetic?

How can you tell a magnet from a magnetic material?

We can test and sort different materials using a magnet

Names:

Our question is	To answer it we will
Our prediction is that	

**Our Results**

Magnetic	Non Magnetic

We found out that

We can test and sort magnets and magnetic materials

Names:

Our question is	To answer it we will
Our prediction is that	

**Our Results**

<b>Magnet</b>	<b>Magnetic Material</b>

We found out that

We can test and sort different coins using a magnet

Names:

Our question is	To answer it we will
Our prediction is that	

**Our Results**

Magnetic coins	Non Magnetic coins

We found out that

We can test and sort different materials using a magnet

Names:

Our question is

To answer it we will

Our prediction is that

**Our Results**


We found out that

## Session 3 Teachers' Notes

### Asking Questions

This session continues to develop the skill (started last session) of asking questions and then trying to answer them through scientific enquiry. The session begins by reviewing the questions that were answered through their investigations last time, before focusing on any unanswered questions on magnetic attraction of various objects and materials. Don't worry if you don't have any on this theme yet, the session PowerPoint includes a guessing game which will hopefully lead the children to speculate as to why some items are/ are not attracted to magnets and this in turn will generate questions. For example, if a child says "Everything with metal in it is attracted to the magnet" that can be turned into the question – *Is everything made of metal attracted to magnets?* Write each question in large clear writing on a different A4 sheet of coloured paper or card. Using different colours will help all children (particularly those with dyslexia) distinguish easily between them. If questions are long winded, try to rephrase them (with the questioner's permission) so that they are as brief, simple and testable as possible. Depending on how many testable questions your children come up with (3 or 4 is good), you may decide to supplement them with one or more of the suggested questions on slide 10 of the PowerPoint. It is suggested that the children investigate the questions in groups of 3, so several groups will tackle the same one.

The question on coins –

*'Are all coins magnetic?'* is a particularly good one for getting the children thinking so it is recommended that you include this if possible (see below for resources).

### Resources

#### **Guessing Game**

A tray of 12 common classroom items is needed for the Attractive Objects Guessing Game which is introduced and run during the Teaching PowerPoint. The items needed are as follows:

*A pencil, pen, elastic band, paperclip, rubber, bulldog clip, stapler, ruler, marble, pair of scissors, pencil sharpener and a clothes peg*

These items are illustrated on the PowerPoint and on the children's Game Sheet. It does not matter if your items look different and are made of different materials, e.g. your ruler is wooden rather than metal as shown. Remind the children that they are guessing whether the item in tray (not the photograph) is magnetic. Before the game begins, show any items that are substantially different so children can make their guesses.

#### **Coins -check your dates!**

If you include the question *'are all coins magnetic?'* you will need a bag of coins per group. Children may begin by thinking that all coins are magnetic because they are made of metal. As they begin to test the coins they will find that some 2p and 1p (copper coins) are magnetic and some are not. They will hopefully begin to theorise as to why. They may possibly think that newer shinier coins are magnetic whilst the dirtier ones are not. To test this theory they could clean some non-magnetic older coins with a cloth and some vinegar. They will of course discover that cleaning makes no difference. If the children speculate that it is newer coins that are magnetic, encourage them to look at the dates. Before 1992, 2p and 1p coins were made from non-magnetic bronze but since then they have been made from steel coated in copper which is magnetic. Sorting by date will confirm their theory and an Internet search will reveal why.

A similar situation exists with 5p and 10p coins which were made of a non-magnetic alloy before 2011. Since 2011, the Royal Mint began using steel in the manufacture of 5p and 10p coins so newer coins are magnetic.

In order for groups to successfully investigate the coin question, each group will need a bag of coins with a range of dates so that some are magnetic and others are not. It may be easier to give some groups just copper coins and others 5p and 10p coins. They will also be interested to try larger denomination coins at some point as well.